



West Village at University of California at Davis is the largest planned zero net energy neighborhood in the U.S.

Energy Efficiency in Campus Buildings

Moving Toward 100% Clean, Renewable Energy on Campus

The task of powering college campuses with clean energy can be made easier through aggressive steps to improve the energy efficiency of campus buildings. Energy efficiency in campus buildings can save colleges money and accelerate the transition to a clean energy future.

Building Energy Efficiency Is Key to a Clean Energy Future

Nearly half of the energy we currently consume in the U.S. is wasted. College campuses are no different. In campus buildings, which consume more than 80% of the energy used by universities, improved energy efficiency can cut up to 60 percent of overall energy use. Energy efficiency measures are the cheapest way to meet many energy needs and reduce associated emissions. Many solutions are available today and can be deployed quickly.

Campuses Benefit from Improved Energy Efficiency in Their Buildings

College campuses can implement energy efficiency improvements rapidly:

- **Controlled Environment:** Campuses are highly structured, controlled environments and colleges have the ability to deploy resources quickly.
- **Environmental Awareness:** At many schools, environmentally conscious students, faculty and staff are eager to develop and implement energy efficiency solutions.
- **Innovation Hubs:** Campuses provide testing grounds to save energy, using “intelligent” information technology and experimenting with zero-net energy and passive building techniques. The Georgia Institute of Technology recently opened a carbon-neutral research lab and is designing another facility as part of the Living Building Challenge, a green building certification program.

America’s higher education institutions have already reduced their buildings’ energy consumption by 8 percent, and their energy intensity (energy used per square foot of floor space) by 14 percent since 2007.

Colleges and Universities Are Fertile Grounds for Building Energy Efficiency Improvements

Colleges still spend almost \$7 billion on energy each year, and present multiple opportunities for building energy efficiency gains.

- **Out-of-Date Infrastructure:** Many campuses have older buildings that were not designed to be energy efficient, or that rely on outdated equipment. Universities can make cost-effective investments to improve building performance, such as widespread adoption of low-energy LED lighting, and undertake building retrofits to improve insulation and upgrade heating and cooling equipment.
- **Energy-Intensive Facilities:** Certain facilities on campuses are uniquely energy-intensive and provide powerful opportunities for energy savings. Research laboratories, for example, require energy for proper ventilation to keep lab workers safe. Campuses across the country are taking measures to reduce operational costs in labs, including shutting the sash on fume hoods, using appliance timers, and storing samples at slightly higher temperatures where appropriate.

The Rafik B. Hariri Building at Georgetown University is LEED-certified silver and includes efficient lighting and ventilation features.

With Student Help, “Better Buildings” at Allegheny College Save Energy and Money

Allegheny College, a small liberal arts school in northwestern Pennsylvania, located 30 miles from Lake Erie, has successfully reduced building energy use in recent years.

In 2011, Allegheny College joined the U.S. Department of Energy’s “Better Buildings Challenge,” committing to reduce building energy intensity by 20 percent by 2020. Since then, efficiency improvements across campus have reduced energy intensity for all of Allegheny College buildings by 14 percent. One project, a renovation of Carr Hall to make room for the Allegheny College’s growing Environmental Science department, made the building 23 percent more efficient through improvements such as better heat recovery and energy-efficient lighting.

Students have also contributed to making buildings on Allegheny’s campus more energy efficient. For example, a group of students helped set sustainability goals for a new residential hall project and provided feedback on its design. As a result, the LEED-certified gold building has energy-efficient light fixtures controlled by sensors, energy-saving motors in building equipment, and large windows and bright paint colors that bring and reflect sunlight into student apartments and common spaces, as well as clean energy and water conservation features. Allegheny College received a bond to cover the building’s construction and will benefit from energy savings for many years to come.



Georgetown Makes a Commitment to Energy Efficiency and Conservation Across Campus

Clean energy adoption at Georgetown includes extensive efficiency and conservation efforts, as well as on-campus renewable energy installations and renewable energy purchases that surpass the amount of electricity the campus consumes each year.

These include a commitment to achieving LEED-Silver certification or higher for all new building construction, conducting building energy audits, and investing in energy efficiency retrofits in buildings.

A student-run \$1.5 million fund also provides grants and resources for energy efficiency projects, like LED lighting retrofits in the Hoya Court campus dining hall and in the parking lot of the Rafik B. Hariri building.

In FY2014, Georgetown’s efficiency and conservation efforts combined to save 500,000 kWh of energy annually, cutting emissions equivalent to taking more than 700 cars off the road each year.

*This factsheet is one of a 10-piece series.
For citations, and to read the other factsheets,
please visit
EnvironmentAmericaCenter.org/Campus101*



List of Resources

To start saving energy in campus buildings:

- Benefit from ENERGY STAR resources to measure and track energy use and expenses (www.energystar.gov/benchmark), plan cost-effective building upgrades (www.energystar.gov/bldgmanual), set performance targets (www.energystar.gov/newbuildingdesign), and learn about how to manage building data (www.energystar.gov/businesstraining).
- Access free resources to reduce energy consumption in schools from the Alliance to Save Energy Coalition: www.ase.org.
- Take the Better Buildings Challenge like Allegheny College and 16 other universities: betterbuildingsolution-center.energy.gov/challenge.